



United States
Environmental Protection
Agency

Office of Public Affairs
Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Illinois, Indiana
Michigan, Minnesota
Ohio, Wisconsin

*This Fact Sheet will
tell you about...*

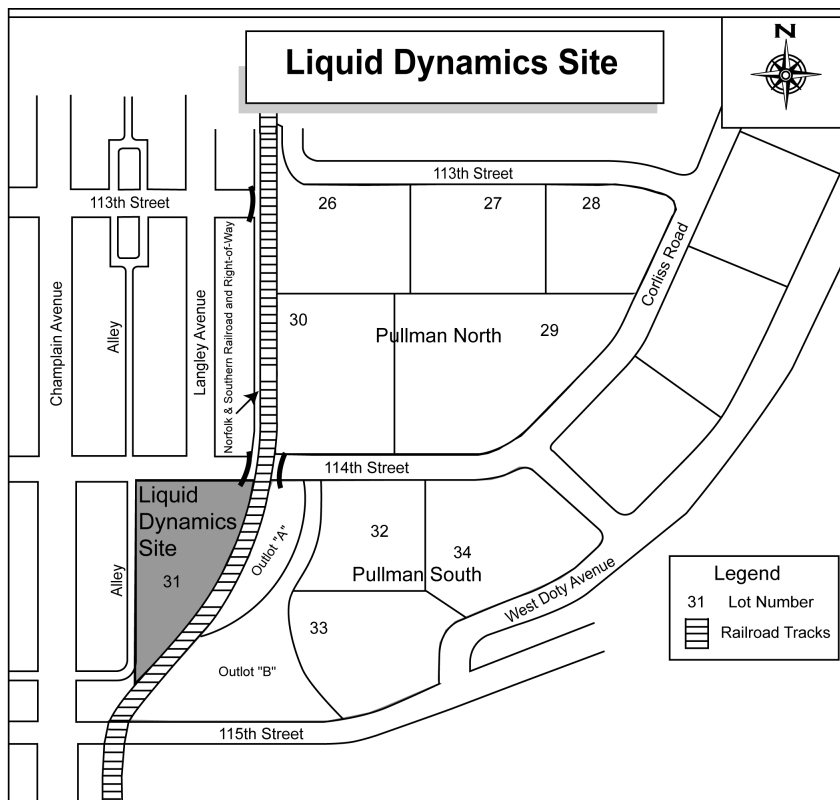
- The status of the site.
- The final cleanup plan.
- Potential risks posed by the site.
- The history of the site.
- Site investigations.

Update Fact Sheet

Liquid Dynamics Site

Chicago, Illinois

July 2002



Introduction

In November 2001, the United States Environmental Protection Agency issued General Notices of Potential Liability to some 27 companies that EPA believes may have sent hazardous wastes to the Liquid Dynamics facility in the early 1980s, and therefore may be responsible for cleaning up the site under the Superfund law. Most of these companies (referred to as potentially responsible parties or "PRPs") have responded to the notice, indicating that they are willing to enter into negotiations with EPA to attempt to reach an agreement to conduct or pay for a cleanup of the site. If an agreement can be reached, the PRPs (or their environmental contractor) would begin to develop a work plan for cleaning up the Liquid Dynamics site. As part of the work plan, the following would have to be approved by EPA: the site health and safety plan including, but not limited to, perimeter air monitoring and dust control measures; the site sampling plan to confirm the cleanup objectives; and the air monitoring plan. Upon approval of the work plan, the cleanup would be conducted by the PRPs under the supervision of EPA.

The site is a 2.2 acre area located 0.2 miles southwest of the interchange of interstate 94, also known as the Bishop Ford Freeway (formerly the Calumet Expressway), and 115th Street in Chicago, Ill. The site is bounded by 114th Street to the north, 115th Street to the south, railroad tracks to the east, and a non-designated city of Chicago alley to the west.

Selected Site Cleanup Plan

In June 1999, EPA completed a document called an Engineering Evaluation/Cost Analysis for the Liquid Dynamics site. The purpose of the EE/CA was to identify the goals and cleanup alternatives for the site. (See the “Cleanup Goals” in the box below.) The EE/CA evaluated a range of alternatives to address the contaminated soil.

The alternatives evaluated included no action; fencing the site and placing deed restrictions on the future use of the site; placing a liner and two feet of clean soil over the contaminated soil; placing a multi-layer cap over the soil that exceeds the cleanup levels and placing deed restrictions on the future use of the site; and excavation and off-site disposal of the soil that exceeds the cleanup levels and placing a liner and two feet of clean soil over the remaining soil.

In February 2000, EPA produced and distributed to the public a document called a proposed plan in the form of a fact sheet. This document described the alternative EPA was recommending for cleanup of the site as well as the other alternatives considered. EPA held a public meeting to discuss the EE/CA report and the cleanup alternatives proposed for the Liquid Dynamics site on March 22, 2000. After evaluating all of the relevant comments received during the public comment period, EPA selected the final cleanup plan for the site which best met the cleanup goals.

Cleanup Plan

The final cleanup plan for the Liquid Dynamics site involves:

- excavating the contaminated soil that exceeds the cleanup levels down to two feet below the surface. (See the “Soil Cleanup Levels in mg/kg” table below for the cleanup levels for the different contaminants.)
- treating the excavated soil with a process called **stabilization**. (Words in **bold** are defined in the glossary on page 5.)
- sending the treated soil to an approved hazardous waste landfill.
- placing a liner and two feet of clean soil over the remaining soil.
- planting grass on top.

The total cost of the cleanup is expected to be \$703,000.

Soil Cleanup Levels in mg/kg*

Target Contaminant	Maximum Level Detected at the Site	Cleanup Level
Benzo(a)anthracene	150	200
Benzo(a)pyrene	130	20
Benzo(b)fluoranthene	200	200
Benzo(k)fluoranthene	66	2,000
Dibenzo(a,h)anthracene	28	200
Indeno(1,2,3-cd)pyrene	100	200
Di(2-ethylhexyl)phthalate	2.5	12,000
Arsenic	19	25
Lead	891	1,200

* mg/kg is a unit of measurement referring to the number of milligrams per kilogram. It is a measurement equivalent to parts per million. One part per million is one part in one million parts.

Cleanup Goals

The objective of the cleanup of the Liquid Dynamics site is to address the soil contaminated with **polyaromatic hydrocarbons**, **di(2-ethylhexyl)phthalate**, **arsenic**, and **lead**. The general goals of a cleanup are to take the appropriate action to protect human health and the environment, maintain the protectiveness over time and to minimize the amount of untreated contaminants.

The site-specific cleanup goals for the Liquid Dynamics site are to:

- prevent direct contact, ingestion, and inhalation of surface soil containing chemicals of concern identified in the streamlined risk evaluation.
- prevent possible **leaching** of contaminants from the soil into the ground water.
- prevent movement of contaminants from the surface soil into surface water runoff.

Summary of Site Risks

As part of the EE/CA, samples were taken and a streamlined risk evaluation was conducted. The risk assessment evaluated the possible risks to people and the environment from direct contact with site-related chemicals. Direct contact could be from people trespassing on the site and digging in the dirt and from people using the site for recreation in the future. The EE/CA focused on evaluating risks associated with visitors and/or trespassers that are exposed under current site conditions. A potential future use scenario was also evaluated for direct contact with surface soil by recreational users. The risks for each of the two ways that people could be exposed to the chemicals is summarized in the table “Summary of Estimated Risks” below.

EPA expresses the likelihood of any kind of cancer resulting from a Superfund site as a probability such as a one in 10,000 chance. In other words, for every 10,000 people in the area, an extra case of cancer may occur as a result of being exposed to the site chemicals. An extra case of cancer means that one more person could get cancer than would normally be expected to from all other

causes. EPA has established a cancer risk range of one in 10,000 to one in one million chance of getting cancer in an attempt to set goals for cleanup and public protection. In general, as cancer risks increase beyond one chance in 10,000, EPA considers the cancer risk unacceptable and will require cleanup of the site.

Some chemicals may not cause cancer, but may still cause other health problems such as organ damage, birth defects, and skin irritation. EPA defines acceptable exposure levels to those chemicals as levels that would cause no adverse effect during a lifetime. This acceptable exposure level is represented by what is called the hazard index of 1.0 or below. A hazard index above 1.0 indicates that the site poses potential non-cancer-causing health risks.

Site Risks

The risks associated with exposure to site chemicals is summarized in the table below. The cancer risk to visitors/trespassers from direct contact with the site soil and the risk to future recreational users of the Liquid Dynamics area is unacceptable requiring the site to be cleaned up. The site does not pose any non-cancer-causing health risks.

Summary of Estimated Risks

Time Frame	Receptor	Location	Age Group	Total Cancer Risk	Total Hazard Index
			Target Values:	1 in 10,000 to 1 in 1 million	< 1.0
Current	Visitors/ Trespassers	Liquid Dynamics Site	Children, 4-7 years	1.1 in 10,000	.083
			Adolescents, 8-16 years	1.3 in 10,000	.148
			Adults	1.4 in 100,000	.007
			30-Year Exposure (1)	2.5 in 10,000	---
Future	Recreational Users	Liquid Dynamics Site	Children, 1-6 years	2.2 in 10,000	.419
			Integrated Child/Adult	3 in 10,000	.122
Key: (1) 4 years of child exposure, plus 8 years of adolescent exposure, plus 18 years (18 out of 30 years) of adult exposure					

Site History

The Liquid Dynamics site was part of the former Pullman Palace Car Company property and once housed part of the Pullman Calumet Shops. The shops were devoted to constructing streetcars and luxury passenger railcars. At one time, the Liquid Dynamics portion of the Pullman Company property contained three buildings believed to have housed offices, commercial stores and a shipping area. By 1970, with the decline of passenger rail travel, the Pullman Company ceased operations. Many of the factory buildings were torn down and the Pullman Company property was subdivided and sold.

In 1980, Liquid Dynamics purchased a portion of the former Pullman Company property, and used the site to operate an industrial waste treatment plant under a temporary permit issued in accordance with the Resource Conservation and Recovery Act, a federal law which regulates the treatment, storage and disposal of hazardous wastes. Liquid Dynamics utilized two remaining Pullman buildings on the site to house its operations.

Liquid Dynamics accepted a large variety of primarily liquid-based waste products generated by paint, coatings, adhesives, food, health and beauty care, chemical processing, metal finishing, and other related industries. The waste treatment was performed by a process called electrostatic electrolytic precipitation. The process consists of applying an electrical charge to the waste to precipitate (settle out) dissolved and suspended contaminants. The resultant solids were sent to a landfill, the liquids were discharged under a permit to the city sewer, and the oils were sent to a refinery.

In October 1982, Liquid Dynamics abandoned its operations, leaving approximately 266,000 pounds of hazardous, flammable, corrosive, and toxic wastes in drums, tank trailers, vats, and tanks at the site. In April 1983, EPA mobilized a contractor to remove the threat of public exposure to toxic materials and the threat of fire or explosion due to ease of access, spillage of wastes, and the deteriorated condition of some waste containers. The removal action included approximately 125 drums, five tank trailers, and a variety of vats and other process equipment. Over 47,000 gallons of wastewater and some

200 cubic yards of hazardous sludge and contaminated soil were disposed of during the removal. Two 60,000-gallon bulk tanks containing approximately 30,000 gallons of material were secured and left on site. In August 1990, in response to a legal order called a Unilateral Administrative Order issued by EPA to a number of companies that had sent wastes to Liquid Dynamics, a group of PRPs performed a second removal action which included disposal of the sludge materials remaining in the two 60,000-gallon bulk tanks, removal of the tanks, and tearing down a structure at the site. These emergency removal actions eliminated the immediate threat posed by hazardous materials abandoned by Liquid Dynamics, but did not address remaining contamination at the site.

Investigations

In 1995, the city of Chicago Department of Environment identified the site as a candidate for redevelopment. As a result, an assessment of the property was conducted by the Illinois Environmental Protection Agency to provide information to prospective buyers, developers, and owners regarding the redevelopment potential of the property. The assessment included site inspection and sampling to determine the nature of contamination on the site.

The IEPA sampling results confirmed that the chemicals exceeded select criteria for IEPA cleanup actions. The chemicals included volatile organic compounds, semi-volatile organic compounds, pesticides, and metals in the soil and ground water.

The IEPA sampling analysis indicated the presence of chemicals of potential concern which are suspected to have originated from operations at the Pullman facilities and at the Liquid Dynamics wastewater treatment facility. To evaluate these contaminants and to promote site redevelopment, an EE/CA was conducted. Preparation of the EE/CA included site visits, sampling, and preparation of a streamlined risk evaluation. In addition, an evaluation of the threats posed by site-related chemicals to current and future visitors to the site was conducted.

Glossary

Arsenic

An element of varying appearance which has been used in the production of boric acid, pharmaceutical products and pesticides. It is a by-product of copper, zinc and lead smelting. It is highly toxic by inhalation and ingestion, and is suspected to cause cancer.

Benzo(a)pyrene

A chemical found in coal tar and which results from incomplete combustion. It may be toxic if inhaled and may cause cancer. Benzo(a)pyrene is a PAH that exceeded the cleanup level at the Liquid Dynamics site.

Di(2-ethylhexyl)phthalate

A colorless liquid chemical with no odor. It is a manufactured chemical that makes plastic more flexible. It can be found in polyvinyl chloride plastic products like toys, vinyl upholstery, shower curtains and adhesives. DEHP is also used in inks, pesticides, cosmetics, and vacuum pump oil. There is no evidence that DEHP causes serious health effects in humans, however, adverse health effects were found in animals exposed to high levels of DEHP over long periods of time including liver and kidney damage and liver cancer. Therefore, DEHP may be cancer causing.

Leaching

The process by which liquid trickles through or drains from waste carrying soluble components

from the waste. Leaching can cause waste to be carried down into ground water or carried off site in surface water runoff.

Lead

A metal commonly found in plumbing, automotive batteries, foil and solder. It can be toxic by ingestion or by inhalation of contaminated dust or fumes. Lead accumulates in the body and can build up to dangerous levels over long periods of time. It can cause brain, bone and nerve damage.

Polyaromatic hydrocarbons

A group of over 100 chemicals, such as pyrene, which result from the incomplete combustion of organic substances such as coal, oil, gas or garbage. They are often found in motor oil, roofing tar and are common components of creosote. Some PAHs may also be used in medicines, dyes, plastics and pesticides. Some PAHs are suspected to cause cancer. The PAHs at the Liquid Dynamics site include:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene

Stabilization

This refers to a process by which the contaminants are changed into a harmless material by mixing the contaminants with other substances.

Information Repository

An information repository is a file for public review containing documents related to the project and the Superfund program. The repository for the Liquid Dynamics site is located at the:



Pullman Branch Public Library
11001 S. Indiana St.
Chicago, Ill.
(312) 747-2033

EPA Web Site

This fact sheet will also be available on the following EPA Web site:

www.epa.gov/region5/sites

Click on Illinois and scroll through the list to find Liquid Dynamics.



For More Information

For more information about the Liquid Dynamics site, please contact:

Stuart Hill
Community Involvement Coordinator
Office of Public Affairs (P-19J)
EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Phone: (312) 886-0689
(800) 621-8431 Ext. 60689
Fax: (312) 353-1155
E-mail: hill.stuart@epa.gov

Denise Boone
Remedial Project Manager
Office of Superfund (SR-6J)
EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Phone: (312) 886-6217 or
(800) 621-8431 Ext. 66217
Fax: (312) 886-4071
E-mail: boone.denise@epa.gov



Reproduced on Recycled Paper

